We claim:

1. A method of upgrading a legacy BPON network, having a legacy BPON OLT and a plurality of legacy BPON ONUs, to facilitate communication between the legacy BPON ONUs and an upgraded GPON OLT, comprising:

installing a converter between the plurality of legacy BPON ONUs and the upgraded GPON OLT;

provisioning the converter and the legacy BPON ONUs to appear in the downstream direction to the upgraded GPON OLT as virtual GPON ONUs; and

provisioning the converter to appear in the upstream direction to the plurality of legacy BPON ONUs as a virtual BPON OLT.

2. The method of claim 1, further comprising connecting the legacy BPON OLT to the converter to conduct a learning phase to identify legacy ranging data associated with a prior ranging of the legacy BPON OLT and the plurality of legacy BPON ONUs.

3. The method of claim 2, wherein the learning phase includes the step of identifying and storing legacy ranging data from a PLOAM cell.

4. The method of claim 3, further comprising disconnecting the legacy BPON OLT from the converter after the learning phase.

5. The method of claim 1, further comprising converting, by the converter, transmissions in the upstream direction from a BPON format to a GPON format and converting, by the converter, transmissions in the downstream direction from the GPON format to the BPON format.

6. The method of claim 5, wherein the step of converting includes transferring, by the converter, ATM cells from a payload of an upstream BPON transmission to an ATM payload section of an upstream GPON transmission.

7. A converter for facilitating communication between a plurality of legacy BPON ONUs and a upgraded GPON OLT, comprising:

a central processing unit, a memory, and a queue for storing and processing data transmitted and received by the converter;

a BPON transceiver for transmitting and receiving BPON frames between the converter and the legacy BPON ONUs;

a BPON MAC for processing the BPON frames transmitted to and received from the legacy BPON ONUs; and

a converter managed entity and a plurality of ONU managed entities for storing and manipulating parameters related to the management of the legacy BPON ONUs and the upgraded GPON OLT.

8. The converter of claim 7, further comprising a GPON transceiver for transmitting and receiving GPON frames between the converter and a GPON OLT, and a GPON MAC for processing the GPON frames transmitted and received by the converter.

9. The converter of claim 8, further comprising a BPON transceiver for receiving BPON frames from a BPON OLT for conducting a learning phase, and a BPON MAC for processing BPON frames received by the converter from the BPON OLT.

10. The converter of claim 9, wherein the learning phase includes monitoring, by the converter, transmissions between the legacy BPON ONUs and the legacy BPON OLT to identify legacy ranging data for use in ranging the legacy BPON ONUs.

11. The converter of claim 10, further comprising an unbalanced splitter connected downstream from the GPON OLT for splitting transmissions between the converter and an upgraded GPON ODN.

12. The converter of claim 7, wherein the converter is co-located with the new GPON OLT and is configured to have direct access to the backplane of the GPON OLT.

13. The converter of claim 12, wherein the converter acts on downstream transmissions before the transmissions are formatted as GPON transmissions.

14. The converter of claim 7, wherein the converter is coupled to a SAR unit for segmenting and reassembling transmissions between the legacy BPON ONUs and the new GPON OLT to convert the transmission between a ATM format and a GPON GEM frame format.

15. A method of ranging an upgraded PON OLT with a converter and a plurality of legacy PON ONUs, comprising the steps of:
   installing the converter between the legacy PON ONUs and a legacy PON OLT;
   monitoring, by the converter, transmissions between the legacy PON OLT and the legacy PON ONUs to identify legacy ranging data in the transmissions related to a prior ranging of the legacy PON ONUs with the legacy PON OLT; and
   storing, by the converter, the legacy ranging data to facilitate the ranging of the legacy PON ONUs.

16. The method of claim 15, a transparent mode in which the converter resides transparently between the legacy PON ONUs and the legacy PON OLT to confirm that transmission between the legacy PON ONUs and the legacy PON OLT continue unaffected by the installation of the converter.

17. The method of claim 15, wherein the step of monitoring further comprises identifying and storing data from a PLOAM cell transmitted between the legacy PON ONUs and the legacy PON OLT.

18. The method of claim 15, further comprising disconnecting the legacy PON OLT and beginning a bridge mode in which the converter converts transmissions in the upstream direction from a legacy PON format to an upgraded PON format and converts transmissions in the downstream direction from the upgraded PON format to the legacy PON format.

19. The method of claim 15, further comprising provisioning the converter and the legacy PON ONUs to appear in the downstream direction to the upgraded PON OLT as virtual upgraded PON ONUs and provisioning the converter to appear in the upstream direction to the legacy PON ONUs as the legacy PON OLT.